UNITED TECHNOLOGIES CORPORATION
PRATT & WHITNEY DIVISION
CORRECTIVE ACTION PROGRAM
2009 ANNUAL REPORT/UPDATE
PERMIT DEP/HWM-043-061

January 2010

Volume 1 of 3

Prepared for

UNITED TECHNOLOGIES CORPORATION
PRATT & WHITNEY DIVISION
400 Main Street
East Hartford, Connecticut 06108

Prepared by

LOUREIRO ENGINEERING ASSOCIATES, INC.
100 Northwest Drive
Plainville, Connecticut 06062

An Employee Owned Company

LEA Comm. No. 88UT716

Pratt & Whitney
400 Main Street
East Hartford, CT 06108

Pratt & Whitney
A United Technologies Company

January 21, 2010

State of Connecticut
Department of Environmental Protection
Bureau of Waste Management
79 Elm Street
Hartford, Connecticut 06106-5127

Attn: Carmen Holzman

RE: 2009 Corrective Action Annual Report
United Technologies Corporation/Pratt & Whitney Division
400 Main Street, East Hartford, Connecticut
Permit DEP/HWM-043-061

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

UNITED TECHNOLOGIES CORPORATION
PRATT & WHITNEY DIVISION

David Russell
Director, Facilities & Services

Attachment

cc: Robert Isner, Connecticut Department of Environmental Protection (w/o attachment)
Diane Duva, Connecticut Department of Environmental Protection (w/o attachment)
Maurice Hamel, Connecticut Department of Environmental Protection
Gil Richards, Connecticut Department of Environmental Protection
Lauren Levine, United Technologies Corporation
Terry Robinson, Pratt & Whitney
Bill Chudzik, Pratt & Whitney
Brian Cutler, Loureiro Engineering Associates

Loureiro Engineering Associates, Inc.

January 21, 2010

State of Connecticut
Department of Environmental Protection
Bureau of Waste Management
79 Elm Street
Hartford, Connecticut 06106-5127

Attn: Carmen Holzman

RE: 2009 Corrective Action Annual Report
United Technologies Corporation/Pratt & Whitney Division
400 Main Street, East Hartford, Connecticut
Permit DEP/HWM-043-061

Dear Ms. Holzman:

On behalf of our client, United Technologies Corporation (UTC)/Pratt & Whitney Division, we have prepared this letter and attached annual report to provide the Connecticut Department of Environmental Protection with the status of activities being undertaken to comply with the requirements of Section IV, Part N of the above referenced permit. Specifically, this letter provides a status of those investigation and remediation activities associated with releases of hazardous waste and hazardous substances at or from the 400 Main Street, East Hartford, Connecticut facility. The annual report has been formatted to provide an update:

- On those investigation and remediation activities that have been completed;
- On those investigation and remediation activities that are presently underway;
- On post remediation monitoring and maintenance for previously completed projects; and
- Of the cost estimate for planned investigation and remediation activities and operation and maintenance of those remediation systems presently in place.

We trust that the information contained herein meets with your satisfaction. Should you have any questions or comments, please do not hesitate to contact Lauren Levine of UTC at (860) 728-6520 or me at (860) 410-2968.

Sincerely,

LOUREIRO ENGINEERING ASSOCIATES, INC.

Brian A. Cutler, P.E., L.E.P.
Senior Vice President

Attachment

Table of Contents

APPENDICES

ACRONYMS

CFR	Code of Federal Regulations
CT ETPH	Connecticut Extractable Total Petroleum Hydrocarbons
DEP	Connecticut Department of Environmental Protection
DNAPL	Dense Non-Aqueous Phase Liquids
DSN	Discharge Serial Number
ECAF	Environmental Condition Assessment Form
GAC	Granular Activated Carbon
GWTS	Groundwater Treatment System
HCS	Hydraulic Containment System
HWM	Hazardous Waste Management
LEA	Loureiro Engineering Associates, Inc.
LEP	Licensed Environmental Professional
LNAPL	Light Non-Aqueous Phase Liquids
MASC	Maximum Allowable Stack Concentrations
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
ORP	Oxidation/Reduction Potential
PCBs	Polychlorinated Biphenyls
PRA	Potential Release Area
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RCP	Reasonable Confidence Protocol
RCRA	Resource Conservation and Recovery Act
RCSA	Regulations of Connecticut State Agencies
RSRs	Connecticut Remediation Standard Regulations
SPDES	State Pollutant Discharge Elimination System
SSVS	Sub-slab Ventilation System
TSCA	Toxic Substances Control Act
UTC	United Technologies Corporation
VOCs	Volatile Organic Compounds
WWTP	Wastewater Treatment Plant

UNITS

gpm	gallons per minute
mg/kg	milligrams per kilogram

1. INTRODUCTION

United Technologies Corporation/Pratt & Whitney Division (UTC/Pratt & Whitney) submitted a Resource Conservation and Recovery Act (RCRA) Part B Permit Application to the regulatory agencies on September 5, 1991 for the Pratt & Whitney facility located at 400 Main Street in East Hartford, Connecticut (i.e., 400 Main Street facility). In response to the September 5, 1991 submittal and subsequent amendments, a RCRA Part B Permit to Operate a Connecticut Hazardous Waste Facility (Permit No. DEP/HWM-043-061) was issued by the Connecticut Department of Environmental Protection (DEP) on September 29, 2005. The permit authorizes the storage of hazardous wastes, non-hazardous wastes, universal wastes, and used oil generated from the design, manufacture, assembly, and testing of aircraft jet engine components and the storage and management of wastes from other UTC off-site locations. The Permit incorporates conditions requiring the implementation of a formal Corrective Action program.

Section IV, Part N of the RCRA Part B Permit requires the investigation and remediation of all hazardous waste or hazardous substances released at or on the 400 Main Street facility. The requirements for investigation and remediation are referred to herein as Corrective Action obligations. Section V of Permit No. DEP/HWM-043-061 is a Compliance Schedule associated with Corrective Action obligations for the facility. The first required task was the preparation and submission of an Environmental Condition Assessment Form (ECAF). The ECAF was submitted to the DEP on February 24, 2006. The DEP is currently reviewing the ECAF. Upon review of the ECAF, the DEP would notify UTC/Pratt & Whitney Division whether review and approval by the DEP of the remaining investigation/remediation activities will be required or whether a Licensed Environmental Professional (LEP) may verify that all known releases of hazardous waste or hazardous substances at the facility have been investigated and remediated in accordance with Sections 22a-133k of the Regulations of Connecticut State Agencies (RCSA), known as the Remediation Standard Regulations (RSRs).

1.1 Purpose

This annual report has been prepared to provide the DEP with the status of activities being undertaken to comply with the requirements of Section IV, Part N of Permit No. DEP/HWM-043-061. Specifically, this report provides a status of those investigation and remediation activities associated with releases of hazardous waste and hazardous substances at or from the UTC/Pratt & Whitney Division, 400 Main Street, East Hartford, Connecticut facility. This annual report provides an update:

- On those investigation and remediation activities that have been completed during the period from December 16, 2008 through December 15, 2009;

- On those investigation and remediation activities that are presently underway, including the operation and maintenance of treatment systems presently in place;

- On post remediation monitoring and maintenance for previously completed projects; and

- Of the cost estimate for planned investigation and remediation activities and operation and maintenance of those remediation systems presently in place.

Revisions of the cost estimate will be provided on an annual basis and the current estimate is included as Appendix C. Remedial Action Plans for future proposed remedies will be submitted to the DEP in accordance with the requirements of Permit No. DEP/HWM-043-061. Detailed results and completed reports are maintained by UTC.

The investigation and remediation activities being conducted at the Site follow consistent quality assurance/quality control (QA/QC) requirements. These requirements are being summarized in a Quality Assurance Project Plan (QAPP) which is currently under preparation. The level of QA/QC information in the laboratory reports is consistent with the Reasonable Confidence Protocol (RCP) requirements even prior to September 1, 2007 when these requirements became effective.

1.2 Scope

This report applies to those investigation, remediation, and remediation system operation, maintenance and monitoring activities performed at the UTC/ Pratt & Whitney Division facility located at 400 Main Street, East Hartford, Connecticut (hereinafter referred to as the "Site"). The facility encompasses approximately 769 acres of contiguous land. Pratt & Whitney initiated aircraft engine manufacturing operations in East Hartford in December 1929. Current operations are conducted in an approximate 4-million square-foot complex and include administration and management, manufacturing, testing, research and development, and ancillary services. All of these activities take place in the western portion of the 769-acre property. The Rentschler Airport and the Klondike Area occupy the eastern portion of the property. UTC/Pratt & Whitney previously used these two areas as an airport and a storage/testing area, respectively.

1.3 Report Format

The following sections of this annual report/update have been prepared to document corrective action activities and costs associated with the implementation of future Corrective Action obligations. Specifically,

- Section 2 of this report provides a summary description of projects where activities were performed during 2009 and the outcome of the activities was the completion of the project during the 2009 reporting period.
- Section 3 provides a summary description of projects where activities were performed but the project was not completed during the 2009 reporting period.
- Section 4 provides a description of maintenance and monitoring activities performed in the 2009 reporting period that were associated with either active or completed remediation projects.
- Section 5 provides a description of the cost estimate for future Corrective Action obligations which is presented in Appendix C.

2. 2009 COMPLETED PROJECTS

This Section provides a brief summary of those investigation and remediation projects that were completed during the period from December 16, 2008 through December 15, 2009.

2.1 2009 Completed Program Level Projects

Program level activities are those that relate to the entirety of the 400 Main Street facility and do not involve the performance of investigation or remediation. During 2009, one program level project was completed, this *2009 Annual Report/Update*.

As noted in Section 1, an ECAF was submitted to the DEP on February 24, 2006 and is currently under review. Although a final response to the February 24, 2006 ECAF has not yet been received, Section IV, Part N of Permit No. DEP/HWM-043-061 contains a reference to an annual report/update regarding corrective action activities at the 400 Main Street facility. The preparation of this document which includes an overview of ongoing and completed investigation/remediation projects at the 400 Main Street facility is intended to satisfy the annual report/update requirement referenced in the permit.

2.2 2009 Completed Investigation Projects

Activities were performed on a number of investigation projects in the 2009 reporting period. Of these projects, subsurface investigations were completed for the A Building and F&H Buildings. These projects were completed in the 2009 reporting period and are described below. All other investigation projects are described in Section 3.

2.2.1 A Building Part 1 Study Area Phase II/III Subsurface Investigation

A Phase II/Phase III subsurface investigation was performed to assess the impact of current and historical operations in the A Building Part 1 Study Area on soil and groundwater within and emanating from the study area. The A Building Part 1 Study Area is comprised of the central portion of A Building, which is located on the western portion of the Site. Constructed in 1929, A Building has been actively used for the manufacture of aircraft engines and associated components since the time of construction. A Building as a whole encompasses approximately 400,000 square feet, of which approximately 282,000 square feet make up the Part 1 Study Area.

The Phase II/Phase III Subsurface Investigation included the collection of wood block, concrete, soil, and groundwater samples from a total of 43 Potential Release Areas (PRAs) identified within the study area. Several subsurface investigations were completed prior to performing this

investigation. The previous investigations included the collection of wood block, concrete, groundwater and soil vapor samples and the results of those efforts were used to complete the study area investigation.

The subsurface investigation resulted in the overall adequate characterization of the study area in the context that the limits of releases identified were confirmed through sampling and analytical testing. Investigations of the A Building Part 1 Study Area are considered complete. Based on the results of the investigations that have been completed to date, soil remediation will be required to address CT ETPH, SVOC and VOC contaminated soil. The remediation will likely entail the use of engineered and administrative controls for addressing soil contamination in the A Building Part 1 Study Area.

While no physical evidence of either light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL) were identified during the subsurface investigation, concentrations of chlorinated VOCs in both soil and groundwater are indicative of the presence of residual DNAPL. Remediation of saturated zone soils may be necessary as a component part of a site-wide groundwater remediation strategy.

With regard to groundwater, administrative controls in the form of an Environmental Land Use Restriction (ELUR) will be required to address the presence of compounds in groundwater at concentrations in excess of the volatilization criteria. If A Building is demolished in the future, an ELUR will be required to prohibit residential activity and the construction of a new building(s) without proper vapor mitigation controls. If A Building remains, an ELUR will be required to restrict the area to industrial/commercial use and vapor mitigation controls (e.g. sub-slab ventilation system) will be required. In addition to physical remediation activities, quarterly groundwater monitoring will be necessary for the study area to fulfill the post-remediation requirements of the RSRs and to further characterize groundwater quality.

2.2.2 F&H Buildings Study Area Phase II/III Subsurface Investigation

A Phase II/Phase III subsurface investigation was performed to assess the impact of current and historical operations in the F&H Buildings Study Area on soil and groundwater within and emanating from the study area. In 2006, the southern portions of F&H Buildings were demolished and soil remediation was performed in this area. The F&H Buildings Study Area is comprised of the remaining portions of the manufacturing buildings known as F Building and H Building, as well as the North Bulk Substation, which is located adjacent to the east of H Building.

Prior to demolition, F Building had a footprint of approximately 381,000 square feet, while H Building had a footprint of approximately 370,000 square feet. Currently, F Building has a footprint of approximately 13,600 square feet, and H Building approximately 55,000 square feet. The area was used by Pratt & Whitney in the early 1930's as part of the operations at the airfield. F&H Buildings were built in 1940 in response to a large order for engines from the United States Government during World War II. The study area remained unchanged until the recent demolition of the southern portions of the buildings in 2006.

The Phase II/III subsurface investigation included the collection of wood block, concrete, soil, and groundwater samples from a total of 24 PRAs identified within the study area. Investigations completed prior to performing this investigation included the collection of soil, groundwater, and soil vapor samples and the results of those efforts were used to complete the study area investigation.

The subsurface investigation resulted in the overall adequate characterization of the study area in the context that the limits of releases identified were confirmed through sampling and analytical testing. Investigations of the F&H Buildings Study Area are considered complete. Based on the results of the investigations that have been completed to date, soil remediation will be required to address SVOC contaminated soil. The remediation will likely entail the use of excavation and offsite disposal coupled with administrative controls. With regard to groundwater, administrative controls in the form of an ELUR would also be appropriate for addressing the presence of compounds in groundwater at concentrations in excess of the volatilization criteria. Specifically, an ELUR will be required to restrict the area to industrial/commercial use. In addition to physical remediation activities, quarterly groundwater monitoring will be necessary for the study area to fulfill the post-remediation requirements of the RSRs and to further characterize groundwater quality.

2.3 2009 Completed Remediation Projects

A Groundwater Hydraulic Control and Treatment System was installed to mitigate the migration of groundwater contaminated with hexavalent chromium beneath the northwest portion (in the vicinity of Office Building E and Willow Brook) of the Site in 2009. The system has been in operation on an intermittent basis since April 2009. The Groundwater Hydraulic Control and Treatment System consists of two subsystems: the hydraulic control system (HCS) and the groundwater treatment system (GWTS). The HCS consists of four, 8-inch diameter extraction wells with electric submersible pumps. The pumps are connected to a common underground header and the extracted water is transferred underground to the Main Facility and then in aboveground piping to the GWTS.

The Groundwater Hydraulic Control and Treatment System is operating in accordance with a Treatment System Modification Approval issued by the DEP on February 24, 2009 to discharge pretreated wastewaters to the Colt Street Wastewater Treatment Plant (WWTP) under Discharge Serial Number (DSN) 001-B. The pretreated groundwater is then treated with other industrial wastewaters and ultimately discharged to the Connecticut River as discharge DSN 001 in accordance with the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) permit number CT0001376.

Several modifications have been made to the Groundwater Hydraulic Control and Treatment System since June 2009. These modifications include the operation of additional tanks, mixers, chemical feed pumps, and treatment chemicals. All modifications have been formally communicated to the DEP and made with the objective of optimizing the performance of the treatment system. The DEP has concurred with all system modifications.

The Operation, Maintenance and Monitoring of the system is discussed in Section 4.1.9.

2.4 2009 Completed Mitigation Projects

During 2009, sub-slab ventilation/depressurization systems were installed in portions of B and D Buildings; A and C Buildings; and the former D-161 area. The sub-slab ventilation systems (SSVS) consisted of horizontal trenching to provide coverage of the targeted areas, and an equipment room to house filters and blower to clean and exhaust vapor to the outside. The systems have been in operation since the third quarter of 2009 and the operation of each system is being monitored.

3. 2009 ACTIVE PROJECTS

This section provides a summary description of projects where activities were performed but the project was not completed during the 2009 reporting period. If activities were performed on a project during 2009 and the outcome of the activities was the completion of the project during the 2009 reporting period, a description of that project has been provided in Section 2 of this report.

3.1 2009 Active Program Level Projects

A QAPP and a Public Participation Plan are being prepared to comply with the requirements of the RCRA Part B Permit and to provide consistency between the investigation and remediation activities performed at the Site. These projects are essentially complete and will be finalized upon receipt of the response to the ECAF. Each project is described in greater detail below.

3.1.1 Quality Assurance Project Plan

A draft QAPP has been prepared for the Site to document the current QA/QC procedures being utilized during the ongoing investigation and remediation activities at the 400 Main Street facility. Section V, Paragraph 6(b)(iii) of the RCRA Part B Permit requires the preparation of a QAPP to ensure that the data are of sufficient quality to make decisions regarding the investigation and remediation at the site. The QAPP takes into account the *Laboratory Quality Assurance Quality Control Guidance - Reasonable Confidence Protocols Guidance Document* developed by the DEP. The QAPP also documents the auditing program to ensure the objectives of the QAPP are being met.

3.1.2 Public Participation Plan

A draft Public Participation Plan has been prepared to document the public participation procedures related to remediation activities to be conducted at the 400 Main Street facility. Section V, Paragraph 6(b)(i) of the RCRA Part B Permit requires the preparation of a Public Participation Plan to ensure the public is provided the opportunity to comment on planned remediation activities and prior to making a determination that remediation is complete.

3.2 2009 Active Investigation Projects

The following is a brief description of the work performed on investigation projects during the 2009 reporting period.

3.2.1 Northwest Area Groundwater Monitoring

Routine monthly groundwater sampling continues as part of a groundwater investigation in the northwest portion of the Site. The groundwater investigation is being performed to refine the understanding of the current groundwater quality within that portion of the Site; to further assess the extent of groundwater contamination inside the facility and to obtain additional data regarding groundwater hydraulic conditions beneath the facility. Data obtained during the monthly sampling events are evaluated and recommendations are made for additional investigations as needed.

3.2.2 Northwest Area Groundwater/Surface Water Interaction Study

A groundwater/surface water interaction study is underway in the northwest portion of the Site. The intent of the study is to gain a greater understanding of effects of Willow Brook and potential other hydraulic influences on groundwater flow and contaminant transport in the northwest portion of the Site. The study activities include:

- The installation of four piezometer/surface water stilling well clusters in Willow Brook;
- The installation of electronic water level data loggers in each piezometer/surface water stilling well location as well as several monitoring wells located in the northwestern portion of the Site;
- The collection of water level measurements from select small diameter groundwater monitoring wells within the study area to augment the data collected utilizing data loggers; and
- The collection of groundwater samples from select wells within the study area.

As of the date of this report, all installation activities are complete and water level measurements and groundwater sampling are ongoing. The investigation will be complete during the 2010 reporting period and will be summarized in the 2010 Annual Report/Update.

3.2.3 Stadium Parking Parcels

UTC/Pratt & Whitney has transferred property identified as the Stadium Parking Parcels (hereinafter referred to as the "Project Area"), which comprise a portion of the Site. The Project Area consists of four parcels; the "Pickle Parcel", the "Notch Parcel", the "North Klondikes Parcel" and the "South Klondikes Parcel" which total approximately 65 acres in area. The Stadium Parking Parcels, located along the eastern portion of the Site, were transferred to the State of Connecticut for use as parking areas for the Rentschler Football Stadium. ECAFs were submitted to the DEP in November 2009 for each of these parcels.

3.3 2009 Active Remediation Projects

This section is reserved for a description of soil, groundwater, surface water, or sediment remediation projects that were underway during the 2009 reporting period but were not completed during the 2009 reporting period. There are no projects that fit into this category for the 2009 reporting period. Operation and maintenance of existing remediation systems is described in Section 4 along with the post remediation maintenance and monitoring of completed remediation projects.

3.4 2009 Active Mitigation Projects

This section is reserved for a description of mitigation projects that were underway during the 2009 reporting period but were not completed during the 2009 reporting period. There are no projects that fit into this category for the 2009 reporting period. The Operation, Maintenance and Monitoring of in place mitigation systems is discussed in Section 4.

4. 2009 MAINTENANCE AND MONITORING ACTIVITIES

This section provides a brief overview of the maintenance and monitoring activities for remediation or mitigation projects. The section has been formatted to present maintenance and monitoring of ongoing or active remediation and mitigation systems first and is followed by a description of post remediation maintenance and monitoring of remediation activities that have been completed.

4.1 Ongoing Remediation and Mitigation Systems

This part provides a description of the operation and maintenance of remediation and mitigation systems that are presently in place.

4.1.1 G Building SSVS

A SSVS was installed during late 2007 and was started in April 2008. Operation, maintenance, and monitoring activities continued in 2009. Quarterly inspections of the system were conducted to check the system for leaks and unusual noises and vibrations, verify proper operation of the relief valve, and to inspect the blower air filters. No issues were noted during these inspections and the SSVS has been operating satisfactorily with operating pressures and temperatures within acceptable ranges.

Following the completion of four quarters of vapor monitoring since system start-up in 2008, LEA evaluated the need for continued quarterly monitoring with respect to the detected VOC concentrations in the vapor samples. The detected VOC concentrations in the influent and effluent vapor samples collected during all four quarters of monitoring were well below the Maximum Allowable Stack Concentrations (MASC) calculated for the SSVS.

4.1.2 B and D Buildings, A and C Buildings, Former D-161 Area SSVS

The three SSVS systems were installed during 2009 and system start-up occurred during the third quarter. Each of the systems are routinely monitored to check the system for leaks and unusual noises and vibrations, verify proper operation of the relief valve, and to inspect the blower air filters. No issues were noted during these inspections and each SSVS has been operating satisfactorily with operating pressures and temperatures within acceptable ranges.

4.1.3 Steam Tunnel Product Recovery System

The operation of the Steam Tunnel Product Recovery System located within the former Photo Laboratory of B Building in the vicinity of the Underground Steam Tunnel continued in 2009. Product is recovered through low-flow submersible pumps installed in a network of recovery wells which pumps the product to a central collection tank. The system is monitored on a periodic basis and the product collection tank is emptied as necessary. To date, a total of 50-gallons of separate-phase petroleum product have been recovered and disposed of off the site.

4.1.4 G Building Basement Groundwater Treatment System

Groundwater from the G Building Basement Dewatering sump is treated through liquid phase granular activated carbon (GAC) prior to discharge to the sanitary sewer. The treatment system is monitored on a periodic basis in accordance with the terms and conditions of the individual State Pollutant Discharge Elimination System (SPDES) permit to ensure proper operating conditions (Permit # SP0000191, DSN 028). The GAC is replaced on an as needed basis.

4.1.5 G Building Tunnel Groundwater Treatment System

Groundwater from the G Building Tunnel Dewatering sump is treated through liquid phase GAC prior to discharge to the sanitary sewer. The treatment system is monitored on a daily basis in accordance with the terms and conditions of the individual SPDES permit to ensure proper operating conditions (Permit # SP0000191, DSN-029). The GAC is replaced on an as needed basis.

4.1.6 C Building Basement Groundwater Treatment System

Groundwater from the C Building Basement Dewatering sump is treated through liquid phase GAC and ion exchange resin prior to discharge to the sanitary sewer. The treatment system is monitored on a periodic basis in accordance with the terms and conditions of the individual SPDES permit to ensure proper operating conditions (Permit # SP0000191, DSN-032). The GAC is replaced on an as needed basis.

4.1.7 Engineering Area Tunnel Groundwater Treatment System

Groundwater from the Engineering Tunnel dewatering sumps is treated through an air stripper. The treatment system is inspected on a periodic basis to ensure proper operating conditions. The air stripper packing is periodically cleaned as necessary. The treatment system is monitored on a periodic basis in accordance with the terms and conditions of the individual SPDES permit to ensure proper operating conditions (Permit # SP0000191, DSN-021).

4.1.8 K Building Basement Groundwater Treatment System

Groundwater from the K Building Basement Dewatering sumps is treated through an ion exchange system prior to discharge to the sanitary sewer. The treatment system is monitored on a periodic basis in accordance with the terms and conditions of the individual SPDES permit to ensure proper operating conditions. The ion exchange resin is replaced on an as needed basis (Permit # SP0000191, DSN-033).

4.1.9 Northwest Groundwater Hydraulic Control and Treatment System

Operation and maintenance on the Northwest Groundwater Hydraulic Control and Treatment System is conducted on a periodic basis and includes routine inspections of equipment and chemical agent mixing and storage, and periodic maintenance of equipment including filter bag replacement, air stripper blower greasing and unit cleaning, vapor phase carbon replacement, transfer pump strainer cleaning and pH and Oxidation/Reduction Potential (ORP) probe cleaning and calibration, as well as permit-required and performance sampling.

4.2 **Post Remediation Maintenance and Monitoring Activities**

This part describes post remediation maintenance and monitoring activities for remediation projects that have been completed.

4.2.1 Willow Brook and Willow Brook Pond/Willow Street North

The mandatory post-remediation activities for this project include monitoring and maintenance of the engineered controls and groundwater monitoring to provide data relative to the effectiveness of the engineered control. These activities were initiated upon completion of the remediation activities in September 2002. In accordance with the *Post Remediation Groundwater Monitoring Plan* and the *Post Remediation Maintenance and Monitoring Program* for the Willow Street North project (approved by the DEP on February 10, 2006) groundwater monitoring and maintenance of engineered controls for the Willow Brook and Willow Brook Pond project and the Willow Street North project were combined beginning in September 2006 and will continue until such a time as the cessation of the activities is approved by the DEP. A report documenting the 2009 monitoring and maintenance of the engineered controls and groundwater monitoring associated with the Willow Street North and the Willow Brook and Willow Brook Pond projects is included as Appendix A of this report.

4.2.2 F Building and H Building

The mandatory post-remediation activities for this project include monitoring and maintenance of the engineered controls and groundwater monitoring to provide data relative to the effectiveness of the engineered control. These activities were initiated in the first quarter of 2007 and will continue until such a time as the cessation of the activities is approved by the DEP. A report documenting the 2009 monitoring and maintenance of the engineered controls and groundwater monitoring associated with the F Building and H Building remediation project is included as Appendix B of this report.

5. COST ESTIMATE

This section presents the cost estimate for planned corrective action activities at the facility. From a meeting with DEP staff on February 24, 2006 and subsequent correspondence (dated June 29, 2006; July 25, 2006; and August 17, 2006) the cost estimate has been prepared as follows:

- Financial assurance will be provided for the cost of performing site-wide investigation, the implementation of Remedial Action Plans that have been submitted to the DEP for review, and the performance of long term operation, maintenance and monitoring associated with Remedial Action Plans that have been implemented.

- Once a Remedial Action Plan has been implemented, the costs associated with that activity will be subtracted from future financial assurance cost estimates.

The cost estimate is provided in Appendix C. The financial assurance estimate for 2009 is $6,765,500 which is $156,400 less than the financial assurance estimate for 2008. The changes in the financial assurance estimate for 2009 in comparison to the 2008 estimate are as follows:

- A reduction of $144,000 as a portion of the A Building investigation activities were completed in 2009;

- A reduction of $25,000 for operation and maintenance activities associated with B Building as the prior year estimate was for the operation and maintenance of the Steam Tunnel product Recovery System for a period of three years and the system has been in operation for one of the three years;

- An increase of $23,000 for operation and maintenance activities associated with F Building to account for the third year of operation and maintenance of the Engineered Control in this area of the site (this will increase by $23,000 per year for each of the next two years);

- A reduction of $400 for operation and maintenance activities associated with G Building to account for the completion of the first year of inspections activities associated with the SSVS;

- A reduction of $4,000 as the L&M Area investigation activities were completed in 2009; and

- A reduction of $6,000 as the Engineering Area investigation activities were completed in 2009.

The financial assurance mechanism has been established and is currently in place.

Appendix A

2009 Annual Post Remediation Maintenance and Groundwater Monitoring Report
Willow Brook and Willow Brook Pond
East Hartford, Connecticut

(Volume 2 of 3)

Appendix B

2009 Annual Post Remediation Maintenance and Groundwater Monitoring Report
F & H Buildings
East Hartford, Connecticut

(Volume 3 of 3)

Appendix C

Cost Estimate for Corrective Action Activities

Financial Assurance Estimates
DEP Permit HWM-043-061
Pratt & Whitney East Hartford, CT
January 2010

	Investigation	RAP implementation for 2010	Current O&M	Subtotal	
A Building	$ 78,000	$ -	$ -	$ 78,000	
B Building	$ 195,000	$ -	$ 50,000	$ 245,000	[1]
C Building	$ 321,000	$ -	$ -	$ 321,000	
D Building	$ 336,000	$ -	$ -	$ 336,000	
E Building	$ 222,000	$ -	$ -	$ 222,000	
F Building	$ -	$ -	$ 68,000	$ 68,000	[2]
G Building	$ -	$ -	$ 94,100	$ 94,100	[3]
H Building	$ -	$ -	see F bldg	$ -	
J Building	$ 372,000	$ -	$ -	$ 372,000	
K Building	$ 183,000	$ -	$ -	$ 183,000	
L Building	$ 186,000	$ -	$ -	$ 186,000	
M Building	$ 273,000	$ -	$ -	$ 273,000	
L&M Area	$ -	$ -	$ -	$ -	
South Production Test	$ 120,000	$ -	$ -	$ 120,000	
North Test Area	$ 325,000	$ -	$ -	$ 325,000	
Power House	$ 252,000	$ -	$ -	$ 252,000	
Experimental Test (including South Experimental Test)	$ 156,000	$ -	$ -	$ 156,000	
Waste Treatment	$ 300,000		$ 1,165,000	$ 1,465,000	[4]
Engineering Area	$ -	$ -	$ -	$ -	
Executive Garage	$ 69,000	$ -	$ -	$ 69,000	
Experimental Testing Airport Laboratory (ETAL)	$ 255,000	$ -	$ -	$ 255,000	
Groundwater	$ 250,000	$ -	$ 1,445,400	$ 1,695,400	[5]
Ecological Risk	$ 50,000	$ -	$ -	$ 50,000	
Total	$ 3,943,000	$ -	$ 2,822,500	**$ 6,765,500**	

Notes:

[1] Obligation associated with LNAPL recovery system project

[2] Long-term obligations associated with F&H Bldg remediation project

[3] Long-term obligations associated with G-building remediation project

[4] Long-term obligations associated with Willow Brook, Willow Pond and Willow Street remediation projects and hexavalent chromium hydraulic control

[5] Operation and maintenance of groundwater treatment systems in basements and tunnels